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Varieties of Wheat for Ohio

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Importance of Heredity.—Great progress has been made in livestock production during the last 50 years due largely to the fact that livestock men everywhere recognize that heredity counts. Big prices are paid for individuals of good breeding, because the breeder realizes that the superior qualities of a sire or dam will be transmitted to the offspring. Producers of farm crops are just beginning to appreciate that the same principles of heredity which govern the breeding of livestock apply with equal force to plant life. Good breeding is as important in plants as in animals, and pays well for the trouble of securing it.

Seed Wheat Does Not "Run Out."—There is no such thing as seed "running out." If seed is well cared for and not allowed to become mixed with inferior strains, it should maintain a good high yield each year. Whenever a community is growing 15 or 20 kinds of wheat it is almost impossible to keep any of them free from mixture, largely because of the custom threshing machine. But if all the wheat growers in a community would agree to grow only one variety it would be a very easy thing to keep that variety free from mixture.

Bearded or Smooth Varieties.—There is no relation between high yields and presence or absence of beards in wheat. In general, the best smooth varieties yield as high as the best bearded varieties and vice versa. It is all a matter of personal preference. In one locality the best variety found may be bearded, and in another locality a beardless variety may be best.

Too Many Varieties in Use.—In the past very little attention has been given by the farmer to the particular variety or strain of corn, wheat, or oats that he was growing. He grew merely so many acres of wheat, corn, or oats. Fortunately the situation is rapidly changing in regard to this practice, but even yet it is quite

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common to find in one community almost as many varieties of wheat as there are farmers growing it.

Mixtures Must Be Seen in the Fields.—The best way to detect mixtures in wheat is to examine the field shortly before harvest time or after the wheat is fully headed out. If the fields are carefully observed at that time it is quickly seen that many are not pure at all, but contain both bearded and smooth heads. Many have mixtures of rye with the wheat. Some fields are of smooth varieties, while others in the same community are bearded. Others are so generally mixed, that it would be hard to know whether it was supposed to be a bearded or a smooth variety. Many fields are infested with cockle and cheat or chess. Other fields may be free from these weeds, but the wheat may be infected with stinking smut.

Varieties Differ in Yield.—That there are important reasons for growing a particular variety or strain of wheat and for keeping it pure is clearly shown by the work of the Ohio Agricultural Experiment Station in its variety testing at Wooster and at a number of the substations and county experiment farms at various places in Ohio. It should be remembered that in all these tests the same treatment is given to all varieties, and that they are all grown on land that is quite uniform in fertility.

RESULTS OF VARIETY TESTS OF WHEAT

Place	Number of varieties tested	Number of years tested	Difference in yield between highest and lowest (bushels)
Wooster	18	10	7.4
Germantown	13	8	7.2
Carpenter	11	8	5.4
Findlay	8	7	4.5
Paulding	8	4	8.4
Miami Co. Exp. Farm	13	5	4.7
Clermont Co. Exp. Farm	6	4	4.1
Hamilton Co. Exp. Farm	8	4	6.4
Washington Co. Exp. Farm	7	2	9.8
Trumbull Co. Exp. Farm	14	2	7.8

Thus it is seen that varieties do not all perform alike, and that it is really worth while to grow the variety that is best adapted and will produce the highest yield.

Some Varieties Yield Well in All Tests.—Some varieties have been found to be consistently high-yielding ones at all points where they have been in test, as shown by the following table:

FIVE HIGHEST-YIELDING VARIETIES OF WHEAT

WOOSTER, WAYNE CO., 10 YRS.
17 varieties

	Bus.
1. Dawson's G. C.	39.9
2. Portage	39.7
3. Gladden	39.0
4. Trumbull	38.3
5. Red Wave	37.9

CARPENTER, ATHENS CO., 8 YRS.
12 varieties

1. Portage	30.8
2. Gladden	29.0
3. Gypsy	27.5
4. Nigger	27.5
5. Valley	27.4

PAULDING, PAULDING CO., 4 YRS.
9 varieties

1. Trumbull	36.8
2. Gladden	36.7
3. Nigger	34.5
4. Turkey Red	34.4
5. Portage	33.6

HAMILTON COUNTY, 4 YRS.
9 varieties

1. Gladden	32.1
2. Red Wave	28.5
3. Turkey Red	28.5
4. Mediterranean	28.4
5. Velvet Chaff	27.2

TRUMBULL COUNTY, 2 YRS.
11 varieties

1. Valley	37.1
2. Gladden	36.9
3. Dawson's G. C.	34.2
4. Fultz	33.6
5. Portage	33.2

HANCOCK COUNTY, 5 YRS.
9 varieties

1. Dawson's G. C.	19.4
2. Gladden	18.8
3. Mediterranean	17.9
4. Trumbull	17.5
5. Fulcaster	16.9

GERMANTOWN, MONTGOMERY CO., 8 YRS.
14 varieties

	Bus.
1. Portage	29.4
2. Gladden	28.6
3. Gypsy	27.6
4. Trumbull	27.4
5. Poole	27.0

MIAMI COUNTY, 5 YRS.
14 varieties

1. Gladden	37.0
2. Trumbull	36 4
3. Valley	36.0
4. Gypsy	35.6
5. Goens	35.4

CLERMONT COUNTY, 4 YRS.
7 varieties

1. Gladden	15.9
2. Nigger	15.8
3. Portage	14.0
4. Mediterranean	13.9
5. Velvet Chaff	13.8

WASHINGTON COUNTY, 2 YRS.
6 varieties

1. Mediterranean	23.0
2. Gladden	22.6
3. Nigger	22.6
4. Velvet Chaff	17.1
5. Trumbull	15.6

MAHONING COUNTY, 1 YR.
12 varieties

1. Fultz	38.6
2. Valley	37.2
3. Gladden	36.6
4. Trumbull	34.0
5. Gypsy	33.9

Trumbull not included in test at Hamilton and Clermont Counties.

Portage not in test at Washington County.

A study of the table shows that Gladden, Portage, and Trumbull wheats are usually found among the first five varieties in test at all these points, so it is safe to conclude that they are high-yielding varieties.

Pure Line Selections or Pedigreed Strains.—The Gladden, Portage, and Trumbull varieties are pure line selections or pedigreed strains of the Gypsy, Poole, and Fultz varieties, respectively, and were all developed by the plant breeders at the Ohio Agricultural Experiment Station. That they are quite an improvement over the old varieties from which they were developed is shown by the following figures, which are also taken from the work of variety tests conducted by the Experiment Station:

VARIETIES OF WHEAT
Pure Line Selections vs. Original Variety

Variety	Wooster 10 years	G'm'ntown 8 years	Carpenter 8 years	Miami 5 years
	Bus.	*Bus.*	*Bus.*	*Bus.*
Gypsy	35.2	27.6	27.5	35.6
Gladden	39.0	28.6	29.0	37.0
Poole	36.7	27.0	27.3	33.4
Portage	29.7	29.4	30.8	35.8
Fultz	36.0	24.6	26.7	32.3
Trumbull	38.3	27.4	27.1	36.4

From the above figures it is seen that the pure line selections have given a yearly gain of about 2½ bushels per acre over the original variety. This is certainly a gain to be appreciated, since it is secured with exactly the same treatment and amount of seed, the only difference being in the kind of seed used. There are some other pure line selections of these same varieties, among which are Ohio 9920 and Ohio 8450 from the Poole, and Ohio 127 and Ohio 8090 from the Fultz. All these are indeed very promising, but unfortunately there is not so much experimental data available concerning them.

How to Prevent Mixing of Varieties.—Since wheat is a self-pollinated plant there is no mixing of varieties except as they are mixed in harvesting and threshing, and, since it is true that two or three varieties of wheat are always found near the top regardless of where they are tested in Ohio, it would seem to be the logical thing to eliminate all varieties except two or three of the best ones, and thus make it possible to keep these varieties pure.